



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------------------|------------------|
| 10/656,080 | 09/05/2003 | Heribert Vogel | Hss-30 | 1855 |
| 25784 | 7590 | 03/08/2006 | | |
| MICHAEL O. SCHEINBERG P.O. BOX 164140 AUSTIN, TX 78716-4140 | | | EXAMINER VERDIER, CHRISTOPHER M | |
| | | | ART UNIT 3745 | PAPER NUMBER |
| DATE MAILED: 03/08/2006 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Period for Reply

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2005.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-12,14-22 and 24-34 is/are pending in the application.
4a) Of the above claim(s) 6-8 and 25-34 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1-3,9-12,14-18,22 and 24 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Applicant's amendment dated December 10, 2005 has been carefully considered but is non-persuasive. Claims 1-3, 6-12, 14-22, and 24-34 are pending. Applicant's statement that 37 CFR 1.121(b) provides for amending the specification by submitting replacement sections has been considered and is persuasive. The Replacement Sheets of drawings dated September 9, 2005 are acceptable and correct the objections to the drawings set forth in the Office action of May 9, 2005. The abstract has been amended to correct the objections thereto set forth in the Office action of May 9, 2005. The specification has been amended to overcome the informalities set forth in the Office action of May 9, 2005. The claims have been amended to adopt the examiner's suggested claim language, to correct the informalities therein, and to overcome the rejections under 35 USC 112, second paragraph set forth in the Office action of May 9, 2005. Correction of the above matters is noted with appreciation.

Applicant has argued that the definition of the term "servo motor" as used in the field of aircraft and as used by Applicant requires feedback, noting the definition provided in NASA's online Dictionary of Technical Terms for Aerospace Use. The examiner respectfully disagrees that the term "servo motor" specifically requires feedback. The term "servo motor" is broad enough to read on both servo motors that require feedback, as well as servo motors that do not require feedback, because any given servo motor does not necessarily require feedback in order to be considered as a "servo motor". Further, Applicant's argument connotes that the servo motor is part of a system that utilizes feedback. A servo motor by itself that is not part of a system does not require feedback. During patent examination, the claims are given the broadest reasonable interpretation consistent with the specification. See *In re Morris*, 127 F.3d 1048, 44

Art Unit: 3745

USPQ2d 1023 (Fed. Cir. 1997), and MPEP 2106 II. Additionally, as set forth in MPEP 2111, during patent examination, the pending claims must be given their reasonable interpretation consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999). Looking to Applicant's specification, there is no explicit or special definition provided for the term "servo motor", nor any mention of the requirement that servo motors would require feedback. Therefore, giving the claims their broadest reasonable interpretation consistent with the specification and consistent with the interpretation that those skilled in the art would reach, a servo motor does not necessarily require feedback. By amending claim 1 to recite the limitation "without using an electric servo motor", the claims are rendered inaccurate, because in original figures 1c, 1d, and 1f, for example, elements 105, 106 broadly may be considered as a servo electric motor.

With regard to Applicant's argument that amended claim 1 differentiates over the teachings United Kingdom Patent 2,149,372, because the control of angular blade pitch in the United Kingdom Patent '372 is by servos, the examiner respectfully disagrees. Column 4, lines 24-28 of the United Kingdom Patent states that in the arrangement of figure 2, there is no servo corresponding to the pitch servo 49 of figure 1, and that the rotors R1 and R2 are driven directly from the helicopter lift engine. Column 4, lines 41-54 go on to state that the preset invention does not require the use of any particular form of drive motors, and that virtually any kind of motor capable of precise control will normally be used for at least one of the angular

Art Unit: 3745

displacements. It is thus clear from the above portions that the teachings of United Kingdom Patent 2,149,372 do not require that the drive motor be an electric servo motor.

Newly submitted claims 25-34 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Applicant elected the species of original figures 1c, 1d, and 1f without traverse in the response of February 9, 2005. New claim 25 recites that a periodic signal varies with a period equal to the period of rotation of the rotor blade about the main rotor shaft. This pertains to the non-elected embodiment of original figures 1a and 1e.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 25-34 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

Claims 14 and 21 are objected to because of the following informalities: Appropriate correction is required.

In claim 14, line 2, "the" (first occurrence) should be deleted.

In claim 21, line 7, "aircraft" should be deleted.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 9-12, 14-18, 22, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1, line 4 recites “without using an electric servo motor”. This is inaccurate, because in original figures 1c, 1d, and 1f, for example, elements 105, 106 broadly may be considered as a servo electric motor. Claim 14 is indefinite in that it depends from canceled claim 13. Claim 14, line 1, claim 15, line 1, and claim 16, line 1 recite “The remotely controlled aircraft”. However, claim 1, from which these claims depend, recites “A remotely controllable aircraft”. Thus, claims 14-16 are contradictory and ambiguous.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 9-10, 12, and 17-18, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over either (World Order Patent 85/02349 or Japanese Patent 3-16,897) in view of United Kingdom Patent 2,149,372. The World Order Patent (figure 1) and the Japanese Patent (figure 1) disclose remotely controlled helicopters

Art Unit: 3745

having respective rotor blades 7, 1a, but do not disclose that at least one rotor blade is formed such that the angle of incidence is performed without using an electric servo motor by using at least one lever acting on the rotor blade by a force produced through a magnetic field which can be varied through the electric drive of at least one coil (claim 1), the magnetic field being produced at least one permanent magnet and by the at least one coil (claim 2), the at least one coil driven in a pulsed manner (claim 3), the force that results in the adjustment of the angle of incidence of the rotor blade being transmitted via at least one push rod (claim 9), the push rod being hinged on the connecting lever (claim 10), with the at least one coil being arranged on a non-rotating element of the aircraft, adjacent to the permanent magnet (claim 12), with the rotor blades having angles of incidence that can be adjusted independently of one another, with the rotor blades having at least two rotor blades whose angles of incidence can be adjusted in a coupled manner (claim 17), with a lift component which is coaxial with respect to a main rotor shaft being controlled by applying a DC voltage to the coil (claim 18)

United Kingdom Patent 2,149,372 (figure 2) shows a helicopter rotor blade pitch control arrangement, whereby at least one rotor blade 119a, 119b is formed such that the angle of incidence is adjustable by means of at least one lever (the element connected to pushrod ends 129a, 129b may be considered to be a lever, or alternatively elements 127a, 127b may be considered to be levers) acting on the rotor blade by a force produced through a magnetic field which can be varied through the electric drive of at least one coil of brushless electric motors 131a, 131b, the magnetic field being produced at least one permanent magnet and by the at least one coil. (Note that all brushless electric motors have their magnetic field produced by at least

Art Unit: 3745

one permanent magnet and by the at least one coil). The force that causes the adjustment of the angle of incidence of the rotor blade is transmitted as a torsion force to the rotor blade via a connecting bracket (the element connected to pushrod ends 129a, 129b) which is hinged on the rotor blade such that the position of the connecting bracket defines the angle of incidence of the rotor blade, the connecting bracket being capable of being pivoted about an axis at right angles to a rotor rotation shaft. The force that results in the adjustment of the angle of incidence of the rotor blade is transmitted via at least one push rod 127a, 127b, the push rod being hinged on the connecting lever, and the at least one coil is arranged on a non-rotating element of the aircraft 110, adjacent to the permanent magnet. The rotor blades have angles of incidence that can be adjusted independently of one another via drive shafts 125a, 125b, and each of the at least two rotor blades having at least one associated coil provided by electric motors 131a, 131b. A lift component that is coaxial with respect to a main rotor shaft is controlled by applying a DC voltage to the coil. The arrangement is provided for the purpose of reducing the mechanical complexity of the helicopter blade pitch control. Column 4, lines 24-28 of the United Kingdom Patent states that in the arrangement of figure 2, there is no servo corresponding to the pitch servo 49 of figure 1, and that the rotors R1 and R2 are driven directly from the helicopter lift engine. Column 4, lines 41-54 go on to state that the present invention does not require the use of any particular form of drive motors, and that virtually any kind of motor capable of precise control will normally be used at least one of the angular displacements. It is thus clear from the above portions that the teachings of United Kingdom Patent 2,149,372 do not require that the drive motor be an electric servo motor.

Art Unit: 3745

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the helicopters of either World Order Patent 85/02349 or Japanese Patent 3-16,897 with the blade pitch control arrangement of United Kingdom Patent 2,149,372, for the purpose of reducing the mechanical complexity of the helicopter blade pitch control.

With regard to the recitation of the at least one coil driven in a pulsed manner (claim 3), it would have been obvious at the time the invention was made to a person having ordinary skill in the art to drive the electric motors in a pulsed manner, for the purpose of making small blade adjustments, because pulsing the electric motors would permit the blades to be moved to multiple positions. With regard to the recitation of the rotor blades having at least two rotor blades whose angles of incidence can be adjusted in a coupled manner (claim 17), this is a recitation of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). The blade pitch control apparatus of United Kingdom Patent 2,149,372 is capable of having at the least two rotor blades whose angles of incidence can be adjusted in a coupled manner.

Art Unit: 3745

Claims 22 and 24, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over either (World Order Patent 85/02349 or Japanese Patent 3-16,897) and United Kingdom Patent 2,149,372 as applied to claim 1 above, and further in view of Applicant's Admitted Prior Art. The modified remotely controlled aircraft of either (World Order Patent 85/02349 or Japanese Patent 3-16,897) shows all of the claimed subject matter except for the coil being driven completely digitally (claim 22), and except for a kit for producing the remotely controlled aircraft (claim 24).

With regard to the recitation of the coil being driven completely digitally (claim 22), it would have been obvious at the time the invention was made to a person having ordinary skill in the art to drive the electric motors completely digitally, as taught by Applicant's Admitted Prior Art, for the purpose of providing accurate control of the electric motors. The common knowledge or well-known in the art statement set forth in the previous Office action is taken to be admitted prior art because applicant failed to traverse the examiner's assertion of official notice. See MPEP 2144.03(C).

With regard to the recitation in claim 24 of the kit for producing the remotely controlled aircraft (claim 24), it would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the modified rotor blade pitch control arrangement as a kit, as taught by Applicant's Admitted Prior Art, for the purpose of improving the existing helicopter or to allow self-assembly of the helicopter. The common knowledge or well-known in

Art Unit: 3745

the art statement set forth in the previous Office action is taken to be admitted prior art because applicant failed to traverse the examiner's assertion of official notice. See MPEP 2144.03(C).

Allowable Subject Matter

Claims 19-20 are allowed.

Claim 21 contains allowable subject matter; Applicant should correct the informality therein.

Claims 11 and 14-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 3745

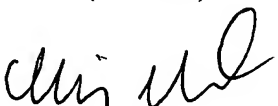
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
March 3, 2006


Christopher Verdier
Primary Examiner
Art Unit 3745